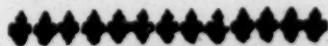


Soli gloria Deo.

CERTAIN RARE

AND NEW INVENTIONS
for the Manuring and Impro-
ving of all sorts of
Ground.

PUBLISHED
BY THE AVTHOR, FOR
the helpe and Instruction of all
those that having any barraine
Land or other, and that are desi-
rous to use the same unto their
best Profit and the pub-
lique Good.



AT LONDON,
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Fleet-street. 1636.

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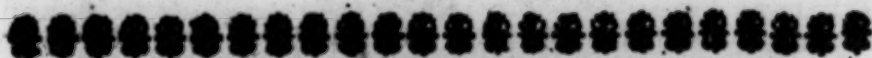
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THE EPISTLE TO

THE READER.



Ourteous Reader, I have here layd open unto thy view certaine Instructions in points of *Husbandry* that as yet hath not beene Practised by any, such as are in use already I will not undertake to teach nor yet to treat of; Although I thinke it were not a labour superfluous, by reason that *Husbandry* is not a needlesse thing, but a principall supporter and maine Pillar both in Church and Common-wealth; yea it is that, that our G o d hath ordayned to be the sustentation of our naturall Lives.

The prosperity of this Science presageth Plensy, it presageth Health, it presageth Wealth, it presageth Life, and maketh glad the Heart of man; but the contrary presageth Penurie, Famine, and woe: For, if this Science thriveth, the whole Land thriveth, but if it fayleth, who is it that feeleth not some smart thereof; and therefore, if all or the greatest part in some kind or other partake of the Calamities that ensueth through the unskilfulnesse of the *Husband-man*, I hope there is none eyther so foolish, or wicked, as to be offended at any that shall endeavour in a lawfull sort to discover any thing, that may bee helpfull to the *Husband-man*, and that may further his skill in *Husbandry*.

The *Husband-man* perhaps may thinke, it onely belongs unto him to discourse of *Husbandry*; but I must tell him, and all others of the like minde, That it is the duty of every one (so farre as they are bound to procure the Publique good) to produce some thing or other, if they can possibly, that may further the good of *Husbandry*: Indeed, looke how much the Soule in excellency exceeds the Body, & Celestiall things exceeds Terrestriall; so farre doth the science of *Divinitie*

The Epistle to the Reader.

exceed all other Sciences; but excepting the Science of *Divinity*, no Science is of that antiquity, worth, and excellency (in my judgement) as is this Science of *Husbandry*. And although many other Sciences are of more esteem in the world then this, yet innumerable are there that have passed their whole lives, some others the greatest part of their lives without the helpe of divers of them; yet never any passed through any one part of their lives without being beholding unto this Science; and therefore I cannot but marvelle to thinke how many great wits have beene imployed to illustrate, and set forth other Sciences, and how few have bent their minds to perfect this Science, when as there is both matter ~~super-~~ abundant, and reason sufficient to induce men thereunto.

In *Martiall* affaires the skill and direction of some great man, as of the Generall oftentimes, doth profit more in the battaile, then the skill and courage of the Souldiers; And the prescription of the *Physitian* is a direction unto the *Apothecary*: And the skill of the *Palate* is of more worth for the preservation of the Ship, then the toyle and labour of the *Mariner*: And shall we thinke it would not profit *Husbandry*, if such as are of a deepe judgment should but bend their mindes and frame their studies, for the discovery of such points of *Husbandry*, as may serve for use and direction unto the *Husband-man*, whom the continuall toyle and daily care they undergoe will never suffer them to become so truly ingenious, as to discry in this Science any more then what they may discerne with their bodily eyes, nor yet all that. Some may thinke perhaps meanely of a subject of this nature; and yet I doubt not, but that moderate men may be exercised in such Points of *Husbandry* as I shall here discover, with as great delight and profit, as they shall desire.

I shall not at this Impression, publish all the skill I have attain'd unto in this Science, neyther shall I describe all the severall *Instruments* and *Inventions* to be used in those points of *Husbandry*, as I shall here now treat of, because I shall want words that may expresse the particulars of the same, for new *Inventions* must have new nominations, both of the things
them-

The Epistle to the Reader.

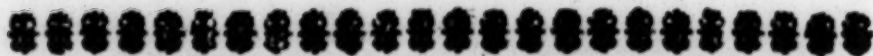
themselves, and also of the particulars thereof; And when both the thing it selfe the Names, and the Particulars, are all unknowne unto the *Reader*, the description thereof would but puzzle him, and so tire his affection, before he would attaine unto the true knowledge and use of the same; therefore at the end of this little *Treatise*, shall all such as are desirous to receive further instructions concerning the same, be directed where they may both see the severall *Engines* and *Inventions*, & also receive further information therein if they please.

I will not stand much to intreat for acceptation, for I know men will accept of it according as they find it, onely this I must say, I hope there is none of so evill a nature, as to take it in evill part; and if that I find it to be well taken, I shall with the greater alacrity discover other *Points* of the like nature more freely and fully hereafter, and unto all those that shall find or discern any good by any thing herein declared, my desire is, that they would give the Lord the glory thereof, whom I take to bee the revealer of all true and lawfull *Mysteries*; and therefore, the glory of the same to bee due unto him onely, if any thing herein seeme imperfect, that attribute to my insufficiencie.

As for the Subject, it is of such a nature that it will not admit of an high stile, nor Rhetoricall phrases, neither is it necessary in such a subject, to speake above the capacity of *Husband-men*, who most commonly are illiterate; therefore in this worke, I have rather endeavoured plainly and briefly to deliver the severall *Directions* and *Instructions* herein contained, then Amply or Elegantly to write of the same: And howsoever I may be censured by any; yet my comfort is, the Lord knoweth that in undertaking this taske, my ayme is, and ever shall be the glory of God, and the publique good of my native Countrey, in which minde, I hope ever to subsist and rest,

Alwayes studying and endeavouring the same:

I. S.



The Contents of this little Treatise.

THe first Chapter. Sheweth certaine Causes of Barrennesse.

The II. Teacheth the use of a new Invention, called a Seed-barrow.

The III. Contayneth Instructions concerning the Manuring-Plow.

The IIII. Contayneth Instructions concerning the Manuring-Waggen.

The V. Sheweth how to prepare your Ground for the Manuring Waggen, or the Seed-barrow.

The VI. Sheweth how to prepare Dung, Chalke, Lime, Marle, or any other manure, to use in your Manuring-Plow, manuring-Waggen, or in your Seed-barrow.

The VII. Declareth the severall Benefits arising through the use of the Manuring-Plow, the Manuring-Waggen, or of the Seed-barrow.

The VIII. Containeth certaine Notes and Observations in Sowing.

The IX. Teacheth the use of the Manuring-Barrow.

The X. Sheweth the severall benefitts arising through the use of the Manuring-Barrow.

The XI. Sheweth the use of the Manuring-Stone, Corroding-Harrowes, or Corroding-Rakes.

The XII. Teacheth the use of the Horse-Rake.

The XIII. Teacheth how to find out the nature of Grounds.

The XIIII. Sheweth how to produce good store of Manure, and Dung.

The XV. Sheweth how to Manure your ground without Dung.

The XVI. Sheweth how to destroy Heath, Brakes, or any other Shrubs.

The XVII. Concerneth the making of some certaine Barren ground, although not worth yearly, 12.^d. the Acre, to become worth 30. or 40.^s. an Acre yearly.

Certaine



Certaine Rare and new Inventions,
for the Manuring and Improving of
Ground of all sorts.

PART. I.

CHAP. I.

Certaine causes of Barrennesse.



IF I should treat of all the causes of *Barrennesse*, my discourse would bee too tedious for so short a Treatise as now I intend; therefore I will omit to speake of some causes, untill I shall more Copiously write of this subject, and yet being it is the property of a good Physician to discover first the Malady before he prescribe the Remedy, so will I first shew some of the causes of *Sterilitie* and *Barrennesse*, that doe most concerne us, and that therefore wee have most reason to take notice of, before I discover those severall points, and directions in *Husbandry*, that hereafter I shall lay open.

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The first Cause the which I shall but now name, and indeed which is the maine cause, is the curse of God upon the Earth for Sinne : For the other, they are but subordinate unto this : As the Prophetical King declareth ; *The Lord maketh a Fruitfull Land barren, for the wickednesse of them that dwell therein*, and this wee may observe to be effected daily, as it were by divers and severall meanes, for sometimes by excessive showers the fatnesse of the Earth is washed away, and sometimes the purest of the Earth by boysterous Windes is driven away, whereby *Barrennesse* by degrees doth ensue daily, as daily experience may testifie, if we doe but consider how Hills and high grounds that lye most subject to the winde and weather, are ever of all other the most *Barren*, and although by these and other meanes, the Lord doth produce *Barrennesse*, yet he hath so ordained, that in the sweat of our browes wee may get our Bread out of the same; and therefore we are to endeavour, as much as lyeth in us, both to pacifie the wrath of God by our repentance and new obedience through our Lord and Saviour *Iesus Christ*, and also to use the best meanes we can attaine unto to procure the Fertilizie of the same; therefore let no man thinke or once imagine, that the more skill and meanes hee doth attaine unto, that the lesse need hee hath of Gods helpe, and so become the lesse religious, for the more skill and meanes we attaine unto, the more in duty doe wee become bound unto GOD for imparting his blessings unto us, and also the more our endeavours are, the greater will our damage be, if the blessing of God be not upon our endeavours, and therefore the more that our endeavours are, and the more

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more our skill and knowledge is, the more carefull ought we to be in the service of God, that so the Lord may be mov'd thereby still to enlarge his blessings and favours unto us; For our aptnesse to forget God when wee enjoy his blessings in great plenty, causeth him to deprive us of those blessings oftentimes; therefore let every one that would be a profitable member in the Church and Common-wealth, be both dutifull in the service of God, and diligent in the labours of his Calling; for although the Lord hath as it were left it in the power of man to Till and Manure the ground, and to make it fertile, yet wee cannot be ignorant how that there is a sovereignty belongs to God, and that many wayes the Lord both can and doth oftentimes destroy the Fruits of the Earth; as sometimes by Blasts, sometimes by Mildeawes, sometimes by Caterpillers, sometimes by one Creature, sometimes by another, and sometimes by unseasonable weather, and therefore let our skill and industry bee never so great, yet let vs remember ever that we stand in need of Gods blessing: and that if wee are not carefull servants unto the Lord, we are neither faithfull servants nor yet profitable subjects, either unto our King or Country.

The other causes of *Barrenesse*, I shall discover at another time, and in the meane time I shall humbly crave every one in their severall callings, to remove these causes already mentioned; first by their true repentance and new obedience, and secundarily by their diligent and lawfull endeavours, according to those severall directions, as hereafter in order shall follow.

CHAP. II.

*Instructions concerning the use of a new Invention,
called a Seed-barrow.*

THE first things that I will speake of, shall be of those that are of the most generall use, and that first of all of the *Seed-barrow*, an invention necessary for every one that Soweth any kind of Graine, and is to bee used in manner following; when you are ready to sow, you must bring your Seed, and also your Manuring-powder made of fine mellow dung, in sacks or other vessels, as you please, into your Field, and place halfe your powder and halfe your seed at the one side of your Field where you begin to sow, and then place the other halfe of your Seed and powder at the other side of your Field, that so you may have your Seed and powder in a readinesse at each lands end to trimme your *Barrow* therewith, for it is not good to overcharge your *Barrow* at a time with your Seed or powder; and therefore at every Lands end you should put about such a quantity of Seed and powder into your *Barrow* as will be spent in going once from the one side or end of your Field unto the other, and not more, because at every lands end, you may supply the same with ease, you also must use more Powder then Seed, and therefore, you must provide five or 6. bushels of manuring Powder or more, for every one bushell of Seed you sow. For the more liberall you are of your powder, the more bountifully shall you reape; therefore having two or three Funnels in your *Barrow*, the first

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first and last also being larger then the middle Funnell which is your Seed-funnell, you may fill the first and the last Funnell with your powder, and also you may mingle some powder with your seed, and thus sowing your ground with your *Barrow*, in this manner; your seed which doth become the roote of the Corne will be so inwrapped in the dung, as that it will grow and fructifie abundantly.

CHAP. III.

Concerning the use of the Manuring-Plow.

THE *Manuring-Plow* may be so called, because it will excellently well Manure any ground, as you Plow and sow the same, and so Improve it very much: You are to prepare, and bring your seed and Manuring-powder into your Field when you would sow the same with this Invention, according as is prescribed in the Instructions for the *Seed-Barrow*, and so you must place halfe your Seed and powder at each lands end, as also is before expressed. This Invention may be used in the Sowing of any manner of ground, but principally in sowing of such ground, and of such graine as you use to sow vnder Furrow.

Also, it is best to Sow some kinde of ground that is very stony and barraine, that will not yeeld the Husbandman so plentifull an Increase, as may recompence him his charge and industry without plenty of some kinde of manure or other: For this Invention (where the Husbandman may get any Dung, Marle, fat earth,

or any other kind of good soyle) will apply such plenty of the Manure unto the seed at the Sowing thereof as the Husband-man shall desire, and so it will cause it to multiply, and fructifie abundantly, and also yearly Improve the sayd ground very much, if it bee thus yeerely manured and sown.

The use of this Invention will neither bee chargeable, nor laborious, nor yet the Improving of Land with the same, because the Land every yeare will yeeld his Crop, and it will Plow, Manure, and Sow your ground with the same speed, and facility as any other common Plow doth, that doth (but onely breake up the ground.

And as there bee severall fashions of the old common Plowes, so likewise may there be made severall fashions of these *Manuring-Plowes*, according to the severall natures of Soyle, and to the severall Customes of Countries: Also in stiffe and hard grounds it will bee necessary, that the Husband-man doe Harrow his ground over after that it is sown with the *Manuring-Plow*, if hee see cause.

CHAP. IIII.

Concerning the use of the Manuring-Waggen.

THE *Manuring-Waggen* is so called, because it cannot well be used without wheelles or somewhat to beare up the same, by reason the Cattle

the otherwise could not well draw it. It being indeed to bee well loaded with Dung or such other Manure that is to be got, because this Invention is to bee vied in sowing of *Barren* ground that of it selfe will beare nothing.

The same kindes of Manure is to be used in this, as is used in the *Seed-Barrow*, but much more in this then in the other; therefore the holes in the manuring Funnels of your *Manuring-Waggen* must be of a wider bore then those of the *Seed-Barrow*, but the holes of the *Seed-funnels* much of one size.

This Invention is most fittest to be drawne by Oxen, because Horses will draw it too swiftly, and the *Barrow* is to bee placed so that the bottome thereof may goe as deepe in the earth, as it is possible for the Cattle to draw the same; for whole loades of some kind of Manuring powder or other is to be put into the Manuring Funnels thereof at a time, and then this Invention in short time will Improve any baraine ground, and make the same to become rich, and fertile.

CHAP. V.

*Instructions shewing how to prepare your Ground
for the Seed-barrow, or Manuring-
Waggen.*

YOU must prepare your ground with your Plow cutting your Furrowes very slender and deepe, and breake the clods with an heaue Oxe-harrow, or Horse-rakes; and also, if your ground bee

of a hard and stiffe mould, that in dry weather will not dissolve, and breake, you must moysten the same through such meanes as hereafter I shall prescribe, and then breake the same with an *Oxe-barrow*, as (commonly is vsed by most Husbandmen,) or by an *Horse-rake*: also you may leave a little space at each end of your Close vnplowed, vntill the last; because of turning and trimming your *Seed-barrow*, *Manuring Plow*, or *Manuring-Waggen* at every Lands end, and also because of removing your Seed and your manuring powder along at the land ends, as you sow: and then at the last you may plow vp your land ends also, and sow the same with your *Seed-Barrow*, or *Manuring-Waggen*, as you did the rest.

CHAP. VI.

*How to prepare fine Dung, Chalke, Lime, or Marle, for
to use in your Seed-Barrow, Manuring-Plow,
or in the Manuring-Waggen.*

YOU must make choise of the finest mellow Dung you have, and when the weather is dry, you must house it, and so keepe it dry against Seed-time in some out house or place, where no wet doth come: and when your occasion serves to vse it, you must beat or stampe it small to powder, and sift it over with such a course siffe as Gardners doe use, or else cast it up against such a cleanser as Bricklayers and others use, when they cleanse their Rubbish and gravell, thereby to gather sand out of the same, that so you may
free

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free it from all clods, or rather refuse-stuffe as would stop the holes in the Funnels of your *Seed-Barrow*, and the clods or other refuse stuffe so seperated out of your powder, will serve to use amongst your other dung, in your *Manuring-Barrow*.

Marle, Chalke, or any other fat soyle would be housed in dry weather, and in like manner must bee beaten or stamped small, and so sifted as the other, but your lime may be slak't & sifted at any time when you have occasion to use it, or if you should find it to agree best with your ground unslackt, then you may stampe it to powder, as you would doe the other and so use it, and where Dang, Marle, or soyle is scarce, there in some Lanes or high-ways in the Summer-time, may a certaine dust or a darke colour be gathered that will bee very necessary and usefull for some kind of Ground, and also some kind of graine.

CHAP. VII.

The severall Benefits and Remedies arising through the use of the Seed-Barrow, Manuring-Plow, and the Manuring-Waggen.

THE remedies and benefits through the use of the *Seed-Barrow*, *Manuring-Plow*, and the *Manuring-Waggen*, are divers; As first I may truly say three severall workes, yea Foure, are done at one instant by them, for they doe in a manner Plow, Manure the ground, Sow the ground, and Harrow the ground, all at one time, and at one act.

Second-

Secondly, they doe disperse the Seed very equally alike throughout all your Cloase, for when men sow with their hands they cannot so equally scatter their Seed alike with their Hand, as the *Seed-Barrow*, *Manuring Plow*, and *Manuring-Waggen* will disperse it.

Thirdly, hereby will your Dung be so really applied vnto the Seed, that it will cherish your Seed, and cause it to multiply and fructifie abundantly.

Fourthly, hereby also will your Dung, Marle, or other Soyle, be so intermingled with the Earth, as that no suddaine shewers or boysterous stormes, may wash or drive away any of the Fatnesse of the same.

Fifthly, your Seeds-man may hereby eyther sow his Corne deepe or shallow as he pleaseth, or as he findeth it to bee most for his profit and advantage.

Sixthly, your *Seed-barrow*, *Manuring-Plow*, and *Manuring-Waggen*, will so immediately cover the Seed at the sowing thereof, as that no kind of Fowle may deuoure any of the same; For alwayes most commonly both Pigeons, and other kind of Birds give their attendance upon the Husband-man, and deuoureth some of the Seed before it can bee covered by the Harrow, or under the Furrow, if they sow under furrow; and although some may thinke it is but a little that they deuoure, yet the Increase that would proceed from that little, may be so much, as would helpe to recompence the Husband-man for his charges and industry.

Seventhly, hereby may the Husband-man manure every Acre of ground that hee soweth with any kind of Graine, either with Dung, Marle, or some other fat mould or other, and so bring his ground into heart, and im-

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improve and enrich his ground by Sowing it, rather than impoverish or dis-inable the same.

Eightly, by the *Manuring-Plow*, and the *Seed-Barrow*, may you plant the Corne such a depth into the Earth, so as neither the great winter Frosts, nor the Summer drough, shall so easily nippe or kill the roote of the Corne.

CHAP. VIII.

Notes and Observations in Sowing.

THere are divers severall Observations necessary to be learned, and understood of every Husbandman, or other, that hath any inclination unto Husbandry, as to know how much Seed hee must sow upon an Acre, or how much ground his *Seed-Barrow* doth sow at once or twice tracing from one end of the Field unto the other; Now therefore, if you know not the length of your Field, you may measure the length thereof, eyther by the Pole or Yard, and then put such a proportion of Seed, and of Powder into your *Seed-barrow*, as you thinke will bee spent in one course from the one side or end of your Field unto the other.

Note therefore, that a Yard in bredth, and 1210. yards in length, maketh a quarter of an Acre, and 2420. yards in length, and a yard in bredth, maketh halfe an Acre; and 4840. yards in length, and a yard in bredth maketh an Acre, according to the Statute.

Or note, that 880. Poles in length, and a yard in
C bredth

breadth maketh an Acre, and 440. Poles in length, and a yard in breadth, maketh halfe an Acre; and 220. Poles in length, and a yard in breadth, maketh a quarter of an Acre; from whence you may note, that your *Seed-Barrow* being Three foote broad doth sow an Acre being drawne the length of 880. Poles, or being drawne the length of 440. Poles, it soweth halfe an Acre, or being drawne but 220. Poles in length, it soweth a quarter of an Acre, and looke how many times so much is spent, as doth sow 880. Poles in length, so many Acres is conteyned in your Close; For note, that if halfe a bushell of Seed, is spent in sowing 880. Poles in length; then if you spend 10. bushels of seed in your Close, your Close is about 20. Acres, if you spend 15. bushels, your Close is then about 30. Acres, and so in like manner, if you spend less then halfe a bushell in sowing of an Acre, then you shall spend lesse then 10. Bushels in sowing of 20. Acres, and so of the rest.

Note also, you should carry a little spare Seed in a bagge upon your *Barrow*, *Manuring-Plow*, or *Manuring-Waggen*, along with you, and so replenish your Seed-funnell therewith, if your Seed should be almost spent before you come at your Lands end, and then at the lands end you should replenish your *Barrow*, *Manuring-Plow*, or *Waggen* againe both with Powder and Seed, and also if it need put some spare Seed in your bagge, because you should bee sure not to draw your *Manuring-Plow*, *Waggen*, or *Seed-Barrow*, when your Seed-funnell is almost empty; Now if you finde that the Barrow doth spend the seed too fast or too slow, there be two wayes to remedy it; For either you may mixe

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a little more or lesse Powder amongst your Seed, or you may give freer or harder passage to your Seed-funnels, as you see cause; and so also may you order the holes of the other Funnels, that are for your Powder.

Now if your ground consist of so fat a soyle as that it needeth no Dung, you may then trimme your Seed-funnell onely with Seed, and let the other funnels remaine emptie, or otherwise you may make use of a *barrow* that hath but one funnell.

Note also, that if you have not Dung sufficient to sow all your graine therewith, you may use a fat Sand when you sow Rye, and with your seed-Wheat you may use either Lime or Chalke beaten, or slak't to powder, and with Pease, Oates, and other graine, you may use Marle, or other of the best or fattest Earth you can get.

Also note, that you may sow your Summer come, as Pease, Oates, Barly and such other, three Weeks or a Moneth sooner then hath been usuall, or is accustomed, and that for two reasons. For first, you need not feare that the late frosts should hurt or prejudice your come, when as the roote is planted more deeply in the earth then it hath beene usuall. Secondly, because the more deeply that your Corne is rooted in the ground, as it is the better for your Corne, so will it require a little more time for the pringing up, & growing of the same.

Note also, in some kind of Ground you must sow a greater quantity of Seed vpon an Acre, then you need for to sow vpon other ground; for the richer the soyle is, the lesse quantity of Seed you may sow, because of the Increase that it will yeeld, and therefore one may

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sow

sow a lesse quantity of Seed in a fertile soyle then in a barren, lest your fertile soyle bring forth your Corne too ranke; Yet as I would not advise any one to be lavish of his Seed, so I would counsell them not to be too sparing, for he that soweth bountifully, shall also reape bountifully.

Also note, that Horses are the fittest Cattle for to draw your *Seed-Barrow* up & downe your Close when you sow it, because it should bee drawne with a little speed, neyther should they bee placed one before the other, but one by the side of another, as in a Coach, that so the Earth may lye equally loose alike before the Barrow.

CHAP. IX.

Instructions teaching the use of the Manuring-Barrow.

WHen you intend to manure a Field, if it be ground that you intend to make Arable, it is expedient, that first you breake up the same with your Plow, and then bring your Dung, Marle, or other soyle, and lay it in great heapes all along at the one side of your Field, and then bring your *Manuring barrow*, and fill the same at one of your heapes, and then draw it up and downe from the one side of your Field unto the other with your Cattle, all against that heape of Dung where you loaded your Barrow untill all that heape be spent, and then fill your barrow at the next heape, and so draw it in like manner from

from one side of the Field unto the other all against that heape, and so in like manner you must spend one heape after another, untill all bee spent in your Close, this kind of Manuring of ground may bee used at any time of the yeare.

Otherwise to gaine time, and spare labour, you should have two or three *Manuring-Barrowes*, and have a Carre with low wheelles made without sides and well bordered in the bottome, whereon you may place your *Manuring barrow*, and so load it as you doe your Dung-carts, where, and when your occasions serve, and so draw it unto your Close that you would Manure, and when you are in your Close, take your Cattle out from your Carre, and set them to your Barrow, and then draw your barrow off from the carre, and so up and downe that place of your Field that you would manure, and thus while some of your cattle are drawing of your Barrow to and fro in your Field, others may bee exercised in fetching of another barrow full of Dung upon your carre unto your Field.

You may manure your arrable ground either in dry or wet weather, and when your ground is either dry or wet, but you may best manure your Pasture ground in the Winter time when it is wet, or in the Summer when it is dry, after the same hath beene eaten bare, least you should hinder the growth of your Grasse, provided alwayes, that you water it well so soone as it hath beene manured, if the season be dry. You cannot bestow too much time, or labour in manuring your arrable ground but you must not manure your Pasture ground too much at a time, lest you should destroy the grasse, or too

much hinder the growth of the same, therefore you may Manure it but a little at a time, and the oftner.

Also, the manure whether it be Dung, Marle, or any other fat mould, that you vse in your *Manuring-Barrow*, must alwayes bee good and moyst when you vse it, either vpon Arable pasture or Meadow ground.

If you thinke it a lesse labour to spread your Dung after the old manner, and cannot stand long about it in manuring it with your *Barrow*, then you may spread some of your Dung, Marle, or soyle, all along in rowes, and then fill your *Barrow* with some of the other that you have reserved, and let your Cattle draw your *Barrow* vp and downe vpon the Dung that lyeth spread abroad in your Close, and your *Barrow* will worke the same so effectually into the ground, as that it will increase the fatnesse of your soyle, and improve your ground very much.

This also is to be noted, that you must have a loose cover for your *Manuring-Barrow*, made of plancke or board, and fitted so to your *Barrow*, that it may sinke downe to the bottome after the Dung or Soyle; and when halfe the Dung is spent that is in your *Barrow*, then the driver or some other should stand vpon the cover in the midst of the *Barrow*, thereby to presse downe the Dung that it may worke out of your *Barrow* and into the ground the better.

Further also, if you finde that your Dung, or Marle doth worke too fast out of your *Barrow*, then you may temper some wet Litter, or other refuse-Russe amongst your Marle, or any other mould that you would vse in your *Manuring-Barrow*; or otherwise you may lay some
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small twigs or spray-wood in the bottome of the *barrow*, and it will keepe any mould from working thorow too fast: as for dressing your ground with Chalke, that may bee done after the old accustomed manner, onely this I would advise those that have not observed so much, that after their Chalke is spread abroad, they should let it so lye vpon the superficies of their ground as long as they can, for the longer that it lyes so before it be plowed in, the better it is for your ground, for indeed it should lye a whole Winter vpon your ground after it is spread abroad, before it be plowed in, that so the frost may nip & breake all the great clods of chalke.

As for Lyming of ground, that may bee done at any time of the yeare, because a little wet flakes & dissolves the Lime at any time, but so soone as ever the Lime or Chalke is dissolved and broken, then it behooves the Husbandman to plow it into the ground, and to manure it well with his *Manuring barrow* before dry weather come, lest the Wind should drive away the dustie pure matter that indeed is the Spirit & life of the same.

CHAP. X.

*The severall benefits arising through the use of the
Manuring Barrow.*

First of all, by the use of this *Invention*, you may yearely very much Improve any kind of ground, either Pasture, Artable, or Meadow ground, with a little soyle, dung, or other fat mould.

Secondly, hereby you may kill, and destroy Mousse,
Brakes,

Brakes, Heath, or any shrubs whatsoever that doth pasture your ground, & hinder your grasse from growing.

Thirdly, you may make any Barren ground, that never yeilded any profit, to become good arrable ground by manuring well the same with such mellow Earth as is to be got neere unto the same.

Fourthly, hereby shall your Dung, Marle, or other soyle bee so incorporated, and ingrafted into your ground, so as that the Wind may neither drive away, nor the excessive Shewers wash away the fatnesse and puritie of the same.

Fifthly, in manuring your Arrable ground with this *Barrow*, you will so worke and chafe the same, that if your Seed be cleane, it will bring forth your Corne very cleane, and free from weedes. For your Dung being wrought out and chafed by your *Barrow* upon the ground, it will not be so apt to bring forth Weedes, and the ground it selfe also will be so mortified, that it will not bee so apt to beare weedes, as when it is manured otherwayes.

Sixtly, the *Manuring-Barrow* will levell your ground and make all even, dispeircing abroad such heapes of Earth as the *Moles* cast up, and levell the little *Mole-hills* that through long continuance are growne hard and rough.

Seventhly, also by the *Manuring-barrow*, you may spread such heapes of Horse-dung or other, that would hinder your Grasse from growing by lying on heapes, and helpe the growing thereof by being dispienced abroad, for ever if you can intend it you should a little manure your Pasture ground with this *Barrow*, so soone

as it is eaten bare if you desire to Improve the same, and also if the weather be dry, you should a little water the same ever after when you have manured it.

Eightly, by Manuring your loose or dry ground with this *Barrow*, you may make it to become firme and good ground that will reteyne any moisture, that shall fall upon it, the longer, thereby to fatten, and mollifie the same; For ground that consisteth of a light and loose mould, doth let the moysture that falleth thereon so soone passe through the same, that it very little profiteth. If any one should thinke it will harden ground, and make it too stiffe, there be wayes enough to mollifie and moysten the same againe; as hereafter shall be declared. Otherwise they may forbear Manuring ground of such a nature with this *Invention*, and use other wayes and Inventions that they shall finde to bee more commodious for the same.

CHAP. XI.

*This sheweth the use of the Manuring-stone,
Corroding harrow, or Corroding-rakes.*

THese severall Inventions are chiefly to kill and destroy Heath, Brakes, Furzes, Mosse, or any other shrubs, that keepeth the Ground barren, or maketh it unusefull, first, the said ground is to bee cleered and then Plowed up, and either in dry or wet weather when your leisure best serves, these *Inventions* are to be drawne by your Cattle, up & downe upon the same, but in wet weather, & when the ground is moyst,

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is the best time, and your labour will be most effectually upon the same. The *Manuring-stone* is to be drawne alone if it bee a great one, if they are little ones, they may bee coupled together; *Corroding-harrowes* are not to bee made too bigg, because in places where the ground is hollow, rising, or falling, they cannot then in so pliable a manner glide upon the earth, and chase the same so off &ually, as when they are lesse and coupled together, the *Corroding rakes*, are to be vsed by such as have but few, or litle Cattle, and in the same manner, and for the same purposes as is the *Corroding harrow*, or *Manuring stone*, and they are to be coupled together at the head ends, and the tayle ends of each are to be fastened in the rugges of the Horses-coller, and so one horse will draw two of them at once.

CHAP. XII.

It sheweth the vse of the Horse Rakes.

THese Rakes are for the same ends and purposes as those that Gardeners vse, although they are to bee much more large, and stronger, and also they are to cleanse any Heathie, Broomie, or other Braikie ground. after the same hath beene broken vp by the *Plow*, of all Rootes, and other refuse-stuffe, that might hinder the vse and Improving of the said Ground, before the same bee dressed with the *Manuring barrow*, and also they will serve to dresse, or prepare any Arable ground after the same is Plowed for the *Seed-harrow* or *Manuring-Waggon*.

CHAP.

CHAP. XIII.

*Instructions teaching how to finde out the Nature
of Ground.*

S Everall grounds are of severall Natures, for some ground is more improved by Chalke, then it is eyther by Marle or Dung; againe other grounds are improved by Marle or Dung, and not by Chalke, or Lime, some are Improved most by one kinde of manure, some by other kindes of manure, some Grounds doe require three or foure severall kindes of manure, as Dung, Marle, and Chalke, or Lime to improve the same; Therefore it behooveth every Husbandman to know the nature of his Ground, before hee be at any great cost, or charge to manure and Improve the same, because I have observed how divers Husbandmen have halfe vndone themselves, and discouraged others, in dressing and manuring their Ground with such kind of manure as hath not been agreeable vnto the nature of the same. Therefore in my judgement the wisest course for one that knoweth not the nature of his ground, nor the severall effects of severall Manures, is to dresse some little severall plots of ground with severall kindes of manure, and when hee seeth what kind of manure doth best agree with the nature of his ground, and that doth most improve it, then to dresse and manure his ground with the same. The like tryall may Husbandmen make in Sowing of their ground, for some kind of graine doth thrive, and prosper better upon one kinde of Ground, then it doth upon another, and likewise

some kinde of manure doth cause one kinde of graine to thrive better then another, and manure that causeth one kind of graine to fructifie, will not cause another; therefore when the Husbandman hath made his triall, and hath found what manure doth best agree with each severall kind of graine, he may trim his Seed barrow, *Manuring Waggon*, or *Manuring Plow* accordingly, and to order his season, in committing his graine unto such kinde of soile, as doth most abundantly yeeld increase of the same, and that hee may have no cause to complaine, but reape such plentiful cropes, as may benefit himselfe, and all others.

CHAP. XIII.

How to produce good store of Dung to manure your ground withall.

THere is nothing generally better to manure any manner of ground then Dung, whether it bee Arable, Pasture, or Meddow ground; and therefore every Husbandman should endeavour to make the greatest quantitie thereof he can, because the more Dung any one hath, the more hee may improve his ground, or the more ground he may manure. It is the custome of many Husbandmen to lay their refuse straw, or other such like stuffe in lanes, and other high wayes, there to rot it and make it into Dung, but this custome is neither good for the travailer, nor yet for the Husbandman, for before it is rotten, or rather beaten

ten to dirt, there it lieth and cumbereth the way, and cloyeth such Cattle, as travell upon the same, and in the end being beaten to dust, or dirt, either the best and purest matter thereof in wet weather is dasht away, and in drie weather is driven away with the wind, the feet of such Cattle raising up the dust as they travell through the same, whereby the husbandman looseth both of the quantity, and of the quality of the same. The like inconveniences doth ensue when the Husbandman layeth his Dung up in great hills and high heapes. For the winde and Sun doth ever quickly dry the out side of the same, and so doth exhaust and drive away much of the fattenesse, or puritie of it, neither can it rotte, or grow mellow well, it lying so in heapes and hills; and therefore in so laying it, hee rather doth diminish, then increase either of the quantitie, or of the goodnesse of the qualitie of the same.

Now therefore, the best way both to increase the quantitie, and reteyne the goodnesse of the qualitie of your Dung, is to make large and deepe pitts neere unto high-ways, and in low grounds where into muddy water may runne, and also to make the like pits neere unto Kitchens, Stables, Gate-rooms or comon shores, whereinto the puddle water may runne from such places; the Husbandman need but once to make these pits, and they will serve for ever, this order being observed, the high-ways may be preserved better, and become more passable in the winter season, and the Husbandman enriched hereby.

Now into these pitts should the Husbandman cast all his refuse straw, and all other such refuse

stuffe that he hath, or can procure to make Dung thereof, and ever as hee layeth in the same, let him shatter some of the best and fattest earth, that hee can get amongst the same, and when he hath put in all his refuse stuffe into his pits, let him cover them over with spray Wood, Loggs, or any other thing that may keepe the Sunne and the winde from exhausting up, or driving away any of the same, and so let them remaine untill such time as it is throughly rotten.

CHAP. XV.

*How to manure Ground without Dung,
or Soyle.*

IF you have neither Soile nor Dung to manure your ground, then you should make choyse of the best and richest Earth that lyeth neere unto you, and provide thereof sufficient, to trimme your *Manuring-Barrow* therewith, when you would manure your ground, for although you have not Dung sufficient to manure all your ground so plentifully as you desire, yet may you enrich your Barren ground, and in short time make it equall in fertilitie and goodnesse vnto the best ground you have, by well Manuring of the same every yeare with such Earth as is to be got in your best ground, if you cannot come by Marle, Chalke, or any other kinde of manure to dresse and enrich the same. Also, there are *Manuring Stones*, and *Corroding harrowes* and *Rakes*, that in wet weather being but drawne up and downe your Close will manure your ground, and
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fatten the same in some sort. Thirdly, your *Seed-barrow* being trimmed onely with some fatte earth, and drawne vp and downe your Field will manure it; but these last are to be practised onely vpon arable ground, because the ground should alwayes bee plowed vp, when you would manure the same, eyther with the *Seed-barrow*, *Corroding harrowes*, or *Manuring-stone*, or *Corroding rakes*, if you have strength enough to draw these Inventions thereon.

Now because some may not conceive this point of Husbandry to be rationall, I will here prove it by one easie, and familiar Example that is common to all: Of all substances *Stone* and *Iron* are of the most obdurate natures that are, and are the most vnlikely to yeeld soyle, yet who is it that can deny, that if one powre Water vpon a Stone and whet but a knife or some other *Iron* thereon, it begets much soyle; and if so small a matter as this will beget a little soyle vpon those two obdurate and barraine natures, how much may be produced by this point of *Husbandry* of such substances, that are of soft and soylie natures: I could have produced the like familiar Examples to prove divers other points of *Husbandry* herein declared, but that I should have made my discourse too tedious, neither doe I thinke that there is any of so shallow a capacitie, that may not conceive them to bee Rationall, because in Nature they differ not from such points of *Husbandry* that are daily practised, and have beene so often approved of in every Countrey.

CHAP. XVI.

How to kill and destroy Furzes, Heath, Brakes, or any other Shrubs, and to improve the said Ground.

First, you must cut up all the Furzes, Heath, or any other Shrubs, neere unto the rootes, and then plow up the said ground, with a good strong Plow, and then rake together the said rootes with a Raking-harrow, or Horse-rake, or with Garden-rakes, made for the same purpose, and cleanse the ground of them as neere as you can: Afterward, first manure the said ground well with a *Corroding-harrow*, *Corroding-rakes*, or *Manuring stones*, untill the colour of the Earth begin to alter, and then trim your *Manuring-harrow* with Marle, Dung, or any kinde of the richest mould you can get, and Manure the said ground as well as time and meanes will afford, and then Sow the same with such graine, as is of least esteeme; as first, with Buck-wheate, Tares, Oates, or Peason. Also when you sow the same, you should make use of a large *Seed barrow*, or *Manuring-Waggen*, that hath no teeth, and that hath large Manuring-funnels, but chiefly of a *Manuring-Plow*, that so you may apply good store of manure unto your Seed: Thus every yeare Manuring of it well, and sowing of the same in this manner, you may gather good crops of Corne and make the same become rich Arrable ground in short time.

But this note alwayes, that when you would Manure or Improve any ground effectually with any of these *Inventions*; you must thoroughly moysten the same in the Morning when you begin if the ground be dry.

CHAP.

CHAP. XVII.

*Concerning the making of Barren ground that is
not worth Twelue-pence an Acre, to become
worth Forty-shillings an
Acre.*

FOrasmuch, as it is in a manner impossible to Improve any Arrable ground or other without Cattle; Therefore such as doe desire to Improve their Barren ground, where there is none but barren ground, must plant and provide for the sustentation and supportation of Cattle; For according to the divine Proverbe, *Where no Oxen are the Crib is empty*; and much Increase cometh through the strength of the Oxe. So where there is not sustenance for Cattle, there cannot Cattle subsist, and where no Cattle are, there the ground must needs remaine Barren; Therefore, in such places of this Kingdome where there is much Barren ground, there such as would recover such Barren, Heathie, Brakie or any other sterill ground, and make it Fertile, must thinke of making some of the same barren ground to become Pasture, and Meddow-ground, that so they may have sustentation for their Cattle both Winter and Summer. For the effecting whereof, the Author will discover vnto any reasonable person, as shall bee desirous to learne, how both easily and speedily they may make some Barren ground that is not worth Twelue-pence an Acre, to become

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good Meddow-ground, that shall bee worth Thirty or forty shillings the Acre yearely, the which in this *Treatise* hee hath omitted to discover; because hee desirith rather to give Testimony thereof in deeds then words: And also, for some certaine other Reasons best knowne unto himselfe.

Or otherwise, hee will helpe those to money for such *Barren* land, (that are not minded to make tryall thereof) or deale any other wayes, as they shall please.

VIVAT REX.



The Conclusion of the Author.



HEREAS his Majestie hath beene graciously pleased out of his Royall favour, to Graunt, and Confirme divers Powers and Priviledges by his Majesties Letters Patents, under the Great Seale for the said Inventions, and for divers other wayes for the Manuring
and

Improving of Ground.

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and Improving of Ground, that as yet have not been found out, nor practised by any. Therefore desiring, that my selfe and all others, that wish well vnto the publique Good, may proceed in an Employment so laudable and beneficiall for the whole Kingdome; out of a gratefull minde, I shall willingly admit all those freely to vse any of the said Inventions, and to exercise any of the said wayes for the Manuring and Improving of Ground, that shall helpe eysber mee, my Agents or Assignes, vnto any Barren land vpon reasonable Conditions, or that shall bee forward in assisting mee in the accomplishing and Exercising thereof.

~~In Fleet street at the Signe of the
three Flowers DeLucas, over against St.
Bridges lane end, there may any one see
diuers of the said Inventions, or be fur
ther informed if they please.~~

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